

Claims:

1. An insect gene expression system, comprising at least one gene to be expressed and at least one promoter therefor, wherein a product of a gene to be expressed serves as a positive transcriptional control factor for the at least one promoter, and whereby the product, or the expression of the product, is controllable.
2. A system according to claim 1, wherein an enhancer is associated with the promoter, the gene product serving to enhance activity of the promoter *via* the enhancer.
3. A system according to claim 2, wherein the control factor is the tTA gene product or an analogue thereof, and wherein one or more tetO operator units is operably linked with the promoter and is the enhancer, tTA or its analogue serving to enhance activity of the promoter *via* tetO.
4. A system according to claim 4, in which the gene encodes the tTAV or tTAF product.
5. A system according to any preceding claim, wherein the gene is modified to at least partially follow codon usage in a species in which the system is for use.
6. A system according to any preceding claim, wherein the promoter is substantially inactive in the absence of the positive transcriptional control factor.
7. A system according to any preceding claim, wherein the promoter is a minimal promoter.
8. A system according to claim 7, wherein the promoter is selected from: hsp70, a P minimal promoter, a CMV minimal promoter, an Act5C-based minimal promoter, a BmA3 promoter fragment, an Adh core promoter, and anAct5C minimal promoter, or combinations thereof.
9. A system according to any preceding claim, wherein the promoter is derived from, or is a fragment of, CMV or Hsp70.

10. A system according to any preceding claim which substantially reduces fitness when activated or de-repressed.
11. A system according to claim 10, comprising a lethal gene under the control of the a promoter of the system.
12. A system according to claim 11, wherein the lethal gene is a dominant lethal.
13. A system according to claim 11 or 12, wherein the lethal gene and the positive control are the same.
14. A system according to claim 13, wherein the gene is tTA or an analogue thereof.
15. A system according to claim 11 or 12, wherein the lethal gene and positive control gene are different.
16. A system according to claim 10, wherein the reduced fitness is a high mortality rate.
17. A system according to any preceding claim, wherein expression of the positive control gene is selective.
18. A system according to claim 17, wherein expression of the gene is determined by sex.
19. A system according to claim 18, comprising a *doublesex*, *transformer* or sex-specific lethal sequence.
20. A system according to any preceding claim, wherein an effector gene is operably linked with at least one said promoter.
21. A system according to claim 20, wherein the effector gene is a dominant lethal gene.
22. A system according to claim 20, wherein the effector gene encodes RNAi.

23. A system according to any of claims 20 to 22, wherein activation of a promoter to which the effector gene is operably linked leads to a selective effect *via* a transcription or translation product of DNA under the control of the promoter.
24. A system according to any of claims 17 to 23, wherein selection is species specific.
25. A system according to any of claims 17 to 24, wherein selection is developmental stage specific.
26. A system according to any preceding claim, which is at least one cistron.
27. A system according to claim 26, which is at least two cistrons, said cistrons being linked to an enhancer under the control of the positive control gene.
28. A system according to any preceding claim, wherein expression of the positive control gene on removal of a suppressor for the gene has substantially no effect on the fitness of an adult from which the suppressor has been removed.
29. A system according to any preceding claim, bounded by insulator elements.
30. A system according to claim 29, wherein the insulators are non-identical insulators.
31. pLA513 as identified by SEQ ID NO. 16.
32. JY2004-tTA as identified by SEQ ID NO. 14.
33. A vector comprising the system of any of claims 1 to 30.
34. A vector according to claim 33, further comprising an expression marker.
35. A vector according to claim 34, wherein the expression marker is a fluorescent protein or resistance marker.

36. A vector according to any of claims 33 to 35, further comprising an expressible transposase gene.
37. An insect comprising, in its genome, a system according to any of claims 1 to 30.
38. An insect according to claim 37, which is substantially uncompromised by the system under permissive conditions where the positive control gene is not expressed.
39. An insect according to claim 37 or 38 which is from a pest species.
40. An insect according to any of claims 37 to 39, which is selected from: mosquito, bollworm, medfly, and *Drosophila*.
41. An insect according to any of claims 37 to 40, wherein expression of the positive control gene is blockable or controllable by dietary supplements.
42. A method to establish compatibility of a promoter with a species, comprising transforming said species with a plasmid, or other vector, comprising a system according to any of claims 1 to 28 with the promoter to be tested, said promoter being operably associated with a gene to be assayed, said plasmid further comprising a marker, under the control of a promoter appropriate to said species, the method further comprising assaying putative transgenic individuals for expression of the marker, and wherein individuals expressing the marker are subsequently assayed for expression of the gene to be assayed.